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ABSTRACT

A study was conducted to examine students' reading difficulties from a metacognitive perspective by considering the content of their awareness and the control they demonstrated over that awareness as they reflected on similarities and differences in various types of reading materials. Subjects were 35 seventh grade students representing seven different achievement levels on the reading comprehension and vocabulary subtests of a standardized achievement test. The repertory grid technique devised by G. A. Kelly was used to elicit subjects' constructs about nine different types of reading materials (including advertisements, maps, and storybooks) that represented different purposes and comprehension levels and offered chances for subjects to construe both surface and deep level structures. Significant differences were found on the number of deep level constructs among the low, middle, and high ability groups. Although high achievers used more deep level constructs that were elaborated and refined, they did not reduce their number of surface or low level constructs. Cluster patterns representing the organization of materials according to similarity of reading purposes were found in a moderate degree at the middle achievement levels; however, complexity cluster organization, construction, and integration were evident only in the highest level. The 10 content categories that emerged from the constructs were highly similar for all achievement levels. The report includes a five-page list of references. (FL)

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Construct Systems of Seventh-Grade Students and Their Relationships to Reading Achievement

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Abstract

Construct systems of seventh-grade students at varying reading achievement levels were investigated to consider the metacognitive awareness that these students' constructs reflected. Thirty-five subjects (5 from each achievement decile 30th through 90th) were randomly selected from 398 students and asked to compare and contrast nine types of reading materials (e.g., map, advertisement, storybook). Significant differences were found to exist on the number of deep level constructs among the low, middle, and high ability groups. Although high achievers were found to use more deep level constructs which were elaborated and refined, they did not reduce their number of surface or low level constructs. Cluster patterns representing the organization of materials according to similarity of reading purposes were found in a moderate degree at the middle achievement levels; however, complexity in cluster organization, construction, and integration was evidenced only in the highest achievement level. The ten content categories that emerged from the constructs were found to be highly similar for all achievement levels.

Construct Systems of Seventh-Grade Students and Their Relationships to Reading Achievement

Emphasis on finding viable answers for difficulties students have in reading has led some researchers to investigate questions dealing with students' concepts of reading. Basically, students' perceptions of reading have been considered from two major research perspectives: metalinguistic and metacognitive.

Researchers concerned with the metalinguistic perspective have investigated children's concepts of reading instruction terminology (e.g., Reid, 1966; Downing & Oliver, 1973-1974), orientations to books and print (e.g., Clay, 1973), and awareness of oral-written relationships (e.g., Mattingly, 1972). Generally, findings indicated that beginning readers were not aware of instructional terminology and literacy behaviors (e.g., top to bottom progression). In addition, concepts of letters, syllables, and word units have been found to develop through reading instruction and encounters with written language (e.g., Clay, 1973; Francis, 1973; Ehri, 1979).

Studies that have specifically dealt with students' concepts of reading from a metacognitive perspective have investigated the underlying understanding or the semantic realm of students' perceptions of "what reading is" (e.g., John & Ellis, 1976) as well as conceptual influences on

their reading performance (e.g., Canney & Winograd, 1979; Myers & Paris, 1978). In general, researchers have suggested that readers experiencing difficulty comprehending also view reading as a code rather than a process of gaining meaning (Johns & Ellis, 1976; Tovey, 1976; Myers & Paris, 1978; Canney & Winograd, 1979; Gambrell & Heathington, 1981; Garner & Kraus, 1981-1982). These researchers described code-based readers as those who attended to surface level cues (Smith, 1975) and graphophonic cues (Goodman, 1970) involving visual observations or sound-symbol relationships. In contrast, meaning based readers are described as those who attended to deep level cues, understanding, and prediction (Smith, 1975; Goodman, 1970).

Students' acquired reading concepts have been found to be reflected in their achievement (Edwards, 1962; Johns, 1972; Canney & Winograd, 1979). Good readers, employing metacognitive strategies in comprehension, were found to monitor context more efficiently and were better able to recognize text alterations (e.g., Isakson & Miller, 1976; Raphael, Myers, Tirre, Fritz, & Freebody, 1981). In addition, better readers were more likely to self-correct (Clay, 1969) and their corrections were found to be better approximations of the letter order represented in the text (Weber, 1970). Different types of readers from various age groups were not found to increase their use of strategies or regulations of reading as materials were increased in

difficulty (Olshavsky, 1978) nor were their views of the reading process found to vary when different materials or subject matter were presented (Stansell, Harste, & De Santi, 1978). However, a basic question posed by Johns (1974) asking what a meaningful concept of reading should include is still being considered by researchers. Recently, discussions have involved metacognitive awareness (i.e., the knowledge and control over thinking and learning) and the relationship metacognition has in the development of efficient readers (Brown, 1982).

Previous studies attempting to gain access to students' metacognitive perceptions of reading have mainly relied on interview techniques. Examples of questions include "What is reading?" (e.g., Oliver, 1975), "What do you think you do when you read?" (Tovey, 1976), and "What things does a person have to do to be a good reader?" (Garner & Kraus, 1981-1982). Although older readers were found to be better able to describe their metacognitive awareness (Myers & Paris, 1978), verbalizations about what "reading is" were found to be limited and often defied explanation (Mason, 1967; Oliver, 1975; Johns & Ellis, 1976). The present study, utilizing Kelly's (1955) repertory grid technique, attempted to gain further insight into students' reading difficulties from a metacognitive perspective by considering the content of students' awareness and the control they demonstrated over their awareness as they reflected on similarities and

differences in various types of reading materials.

Theoretical Framework

Personal Construct Theory

The personal construct psychology of Kelly (1955) was used as the theoretical base to explore students' concepts or constructs about reading. Kelly proposed that as individuals seek to make sense of the world they develop an organized network of constructs that they use to control, predict, and anticipate events. Therefore, individuals' perceptions in a given situation are determined by their unique, subjective cognitive patterns or "templates" which they have created to develop a theory about reality. Individuals' construct systems or theories continuously change as they validate the accuracy of their anticipations. Hypotheses, tests of experiences, and reconstructions within individuals' systems either enrich or stabilize the basic features of their psychological processes. As construct systems change, individuals change.

Kelly posited that individuals' cognitive systems are composed of dichotomous constructs (e.g., friendly/mean, friendly/unfriendly) that are used to differentiate between and among elements (i.e., individuals, objects, situations) in their environments. Constructs are created when two elements are viewed as similar and in contrast to a third.

As a construct is developed, a range of convenience is formed to refer to those elements for which the construct has some applicability. The network of relationships that exist between and among the constructs may be correlational, logical, or scalar.

Kelly's Method of Measuring Constructs

Kelly (1955) devised the repertory grid technique as a means of eliciting dichotomous poles of constructs for a set of elements. It is a qualitative, nonparametric technique originally used to explore individuals' interpersonal construing of different role types. Since the development of the grid, researchers (see Bannister & Fransella, 1980 and Pope & Keen, 1981) have found the technique useful in determining the content and organization of individuals' construct systems, the tones of their systems, and the degree of abstractness, flexibility, and interest of their systems. Specifically, this investigation examined: (a) the frequencies of both surface and deep level structure constructs among different achievers; (b) the core content categories of seventh-grade readers' constructs; and (c) the relationship of students' achievement and the organizational clusters found within their construct systems.

Method

Subjects

The combined normal curve equivalent (NCE) scores of the reading comprehension and reading vocabulary subtests on the California Achievement Test of 398 seventh-grade students were sorted into nine possible decile placements. The NCE scale range for this test is 1 to 99 with an average mean score of 50. The achievement score distribution for the particular school from which the sample was drawn had a mean score of 64.4. Adequate representation of the two lower deciles (1-9 and 10-19) was not found; therefore, these groups were excluded. Thus, five students were randomly selected from each achievement decile between 30 and 99. These thirty-five students (16 girls and 19 boys) represented seven achievement levels and served as subjects.

Materials

The repertory grid technique was used to elicit dichotomous constructs about specified materials that involved print. Elements were represented in object form with nine types of reading materials. These included an aspirin box with printed dosage directions, a state map, a familiar storybook, an encyclopedia, a dictionary, a specific topic book about seashells, a paperback comic collection of a familiar cartoon character, a detailed book of instructions for a game, and a newpaper jean

advertisement. Care was taken to select printed materials found in the subjects' environment that would not be considered to represent either highly positive or negative connotations. Criteria for element selection included: materials that represented different purposes and comprehension levels; possibilities for the subjects to construe surface level and deep level structures; elaborated and concise materials; fiction and nonfiction materials; and materials that contain a variety of topics and those that were about one topic.

Procedure

The nine types of (reading materials) were placed on a table in front of the subject in the order listed on the elicitation grid sheet (see Figure 1). The subject was told

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Insert Figure 1 about here

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that "the purpose of the game or puzzle is to explore your views about reading." The subject was then asked to name the items. The subject's attention was drawn to the first three items and was asked to say in what way two of them were alike (this became the emergent pole of the construct) and in what way the other element was different (this became the contrast pole of the construct). The subject was then asked to place the remaining items with either one or the other of the construct poles. The materials were physically placed at

either extreme by the subject. Triads of elements used to elicit the sort were presented sequentially. Frequently, in pilot data as well as the present study, the imposed preplanned elicitation was not suitable after the first few sorts. When it did not appear beneficial to continue the planned order of sorts, the subject was asked to find two items in the materials that were similar in some way. After the two similar items were selected, the subject was asked to find one that was different. Providing students with this choice of triad selection generally increased the number of constructs. However, all subjects in the present study were asked sometime during the elicitation session to consider the first seven sorts listed on the elicitation grid sheet. The elicitation process continued until the subject could no longer identify any new construct about the elements. The above data collection lasted approximately 35 minutes for each subject.

Coding and Collecting the Data

Each subject's constructs were recorded on a single sheet that had been previously prepared to include the elements. These elements were placed across the top, and blanks on either side of the page served as a place to record the subject's dichotomous constructs. An example of a subject's protocol is shown in Figure 2.

Insert Figure 2 about here

Blank boxes between the dichotomous constructs were used to record a ✓ or an x. If the element was representative of the emergent pole, a ✓ was placed in the appropriate grid box. If the element was assigned to the contrasting pole, an x represented this choice. A dash (-) was recorded if the subject had difficulty applying a particular construct to an element. A record of the sorts, placed on the left of the grid sheet, noted the triad that prompted the construct. However, a construct response was not always given. When this occurred, a slash was placed through the triad sort number and the subject was asked to consider the next sort. Additional triad selections that were spontaneously given by the subject were recorded by simply placing a dot by each element that initiated the construct.

Results

Construct Frequency

Students in the study gave a total of 275 constructs. Sixty-eight per cent of the constructs were determined to be deep level and the remaining thirty-two per cent were considered surface level. Each construct was determined to

be unique by considering (a) the amount of differentiation used in comparing and contrasting the elements and (b) the verbal labels attached to the differentiation. Equivalent constructs, then, would be those in which the subject construed the elements exactly and/or restated or used similar verbal labels. Verbal labels or constructs, were then categorized as to their surface level or deep level. Surface level constructs were defined as those attending to visual observations and graphophonic representations of print (e.g., large print/small print, pictures/no pictures). Deep level constructs were defined as those attending to inference, interpretation, and semantic observations (e.g., fiction/nonfiction, sequential character development/no character development). Three raters independently categorized the constructs as surface level or deep level yielding a mean percentage of agreement of 93.5. The number of constructs given by the students ranged from 2 to 14. The mean and standard deviation for the deep level constructs and surface level constructs are presented in Table 1.

Insert Table 1 about here

To determine the relationship between reading achievement and the number of surface level and deep level constructs, the 35 subjects, representing seven achievement levels, were divided into three groups (low, middle, and

high). The groups were determined from the distribution found within the seventh grade from which the sample was drawn. The low group represented achievement scores that ranged from 30 to 49, the middle group ranged from 50 to 79, and the high group ranged from 80 to 99. Table 2 presents the mean scores for each group on deep level and surface level constructs.

Insert Table 2 about here

A one-way ANOVA was performed on the deep level and surface level constructs for each of the achievement groups. Significant differences were found on the deep level constructs ($F = 10.5$, $p < .01$) among the three groups of readers. A significant difference was not found to exist among the three groups on surface level constructs ($F = .05$, $p > .05$). A Newman-Keuls test, based on 10 in each group, indicated significant differences ($p < .05$) in deep level constructs between the low and middle groups and the middle and high groups.

Correlation provided a better estimate of the magnitude of the relationships between achievement and the levels of constructs. Pearson's coefficient of correlation revealed the relationship between achievement and deep level constructs to be $r = .61$, ($p < .001$). No significant correlation was found to exist between achievement and

surface level constructs (r = .088).

Verbal Content Categories

The verbal labels used by students were sorted by the researcher to isolate categories that were distinct in the subjects' construct systems. The extent of conceptual overlap is unknown; therefore, the categories are not intended to represent distinct purposes but the core groupings the subjects used as they differentiated between and among the reading materials. The verbal content analysis of the 275 constructs indicated that 10 core categories would account for the classification of 99.8 per cent of the constructs. The following categories emerged from the verbal content analysis: story (13%), directions (11%), information (9.5%), advertisement (8%), provides help (8%), topics (7.6%), entertainment (6.5%), fiction (6%), pictures (6%), and materials (words, 3.6%; format, 11.6%; and subject matter, 9%).

Major differences in core categories were not found among the different achievement levels. Students' responses at different achievement levels, then, did not necessitate the establishment of unique categories. However, some qualitative differences in verbal labels (constructs) were found within the categories which related to different achievement levels. Higher level achievers (70 to 99) were found to use surface or low level constructs as well as deep, elaborated, and complex constructs. However, the

reverse was not true. Lower level achievers (30-69) were found to use surface level constructs but not elaborated deep level constructs. For example, in the story category, low achievers used the construct "story/not story" to sort the materials while high achievers used characterization (e.g., "talking people in book"); setting (e.g., "gives background," "imaginary place"); and plot (e.g., "tells happening"). In other words, high achievers should not be expected to always give verbal labels representative of deep level constructs nor should verbal labels representative of surface level constructs be used as a means of gaining insights into different achievement levels.

Methodological note. The verbal content in the core category materials was influenced to some extent by the choice of reading materials. One concern in selecting the reading materials was that subjects might react to the specific item (e.g., jeans) rather than the type (e.g., advertising). This concern was apparently unnecessary as 75.6 per cent of the constructs related to the type of reading material represented rather than the specific item. However, the three subheadings under the core category materials: words, format, and subject matter were found to contain specific references (e.g., brief/more to read, hard cover/paper cover, about Indians/not about Indians) to the characteristics of the particular items used in the study. These subheading categories would be expected to change or

disappear in subsequent replication studies when different reading materials are used to elicit constructs.

Relationships Construed Among Elements

The relationships that subjects construed among the elements were determined by analyzing the element clusters of each of the seven achievement levels. Sorting patterns from the raw grids were entered into the Sociogrid computer program (Shaw, 1980). This program considered each construct pattern given by individual group members and calculated the degree of shared agreement or overlap among the group's grids. The common patterns for each group were then entered into the Focus computer program (Shaw, 1980) which produced element clusters. The clusters of the focused grids were analyzed by considering: (a) the abstraction or differentiation within the system; (b) the complexity of the clusters including the interrelations among the clusters and the hierarchical arrangement of the clusters; and (c) the integration of the elements within the subsystems.

The element clusters of low achievers were found to be limited in: abstraction (e.g., did not differentiate among the types of materials); organization (e.g., did not recognize likenesses and differences in the materials' structure); and integration (e.g., did not relate all items within the subsystems). Variations were found among the low achievers in sorting patterns and verbal labels. For example, one student in the 40 achievement range placed the

narrative or storybook in the construct pole fact while another student in this range of achievement placed the storybook, the shell book, and the cartoon book in the construct pole story. Although element clusters of the low achievers generally indicated a distinction between fictional and nonfictional materials, they were not characterized by sorting materials according to other represented purposes (e.g., instructions).

Middle achievers' element clusters often contained pairs of elements that indicated a moderate organization capability to sort materials according to information, directions, and entertainment purposes. However, subjects in this achievement range, as well as those in the low group, often paired the unusual materials (i.e., aspirin box and advertisement) on concrete characteristics. The middle achievers' clusters were usually characterized by fragmentation and a lack of abstraction.

Only the clusters formed by the construct patterns of the highest achievers (90-99 level) clearly represented ability to construe purposeful relationships among the elements. The materials were organized and related into the following clusters: cluster a (see Figure 3) represented

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Insert Figure 3 about here

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entertainment and fictional materials; cluster b represented

general information and factual materials (encyclopedia and dictionary) with linkage and integration at a highly related level to types of materials providing specific information (shell book and advertisement); and cluster c represented concise instructions or directions materials (map and aspirin box) with linkage and integration to a type of reading material providing elaborated instructions (game book). Cluster a containing the stoybook and cartoon book was determined by the group to have the least relationship to the other clusters. Thus, when these high achievers were asked to compare and contrast the different types of reading materials, they clustered the elements containing factual content into two subclusters b and c. This group considered each element unique in that no two were construed to be similar at the 100 per cent level. Therefore, complexity was evidenced in (a) construction, represented by the differentiation or abstraction which formed the clusters; (b) organization, characterized by an hierarchical system composed of interrelated subclusters; and (c) fragmentation, represented by the integration of all elements into the subsystems.

The construed relationship differences among the achievement levels were found to exist in the organizational structure of the element clusters. Only the highest level achievers inferred underlying structures of all represented material types and sorted the materials into organized

clusters. In contrast, subjects in all other achievement levels were restricted in their ability to construe similarities among the various types of reading materials. They often paired the unusual elements and grouped the same pair or triad of elements together on all sorts without distinctly differentiating between each item.

Discussion

This section includes a discussion of three major findings about metacognitive awareness which appeared to be the most important of the study. Additional discussion includes speculations and possible implications for classroom instruction.

The first finding to be discussed is the relationship that was found to exist between frequency of deep level constructs and reading achievement as evidenced by a correlation of $r = .61$. This finding is comparable to those of Canney and Winograd (1979), Gambrell and Heathington (1981), and Garner and Kraus (1982) who probed the relationship between concepts about reading and achievement and found that better readers focused on meaning in their responses while poorer readers focused on decoding and mechanical aspects. In the present study, a significant difference was found among the low, middle, and high achievement groups on their use of deep level or inferential

constructs. Differences between the low and middle groups and the middle and high groups were also statistically significant. Therefore, the frequency of deep level structure constructs could be predicted to increase significantly from low to middle achievement groups and from middle to high achievement groups.

The second finding is related to subjects' use of deep and surface level constructs. Although high level achievers in the present study were found to use significantly more elaborated and refined deep level constructs than the middle or low achievers, they did not reduce their number of surface or low level constructs. No difference was found to exist among the low, middle, and high achievement groups on their use of surface level constructs. A speculative note drawn from Kelly's (1955) organization corollary about this finding would suggest that as students' cognitive systems develop they do not lose their ability to differentiate in simple concrete terms, but they extend their range of differentiation. This increased differentiation, as evidenced by the students' use of deep level constructs, allowed the higher achievers to approach the reading task with a more complex set of constructs. This second finding is similar to the results Johns's (1972) reported in which half of the better readers' responses were categorized as nonmeaningful. Johns (1974) noted these variations of better readers to give meaningful and nonmeaningful responses and

posed a question as to what a meaningful concept of reading should include. One conclusion drawn from the findings of this study would suggest that high achievers do not always give verbal labels representative of meaning or deep level. However, based on the results of the present study, high achievers could be expected to give more deep level constructs than surface level constructs. The ratio of deep level constructs to surface level constructs was 3:1 for the high achievement group, 2:1 for the middle achievement group, and 1.4:1 for the low achievement group.

The third major finding relates to differences found along the achievement continuum among readers' capacities to recognize underlying purposes of the reading materials represented by the elements in the study. Cluster patterns representing the organization of materials according to similarity of reading purposes were found in a moderate degree at the middle achievement levels; however, complexity in cluster organization, construction, and integration was evidenced only in the highest achievement level. This finding is consistent with those of Canney and Winograd (1979) and Hickman (1977) who found that skilled readers had a meaning priority based in purposefulness and usefulness. Smith (1967) found that good readers made more strategy adjustments when different reading purposes were specified. Brown (1982) suggested that less able readers do not sense the need to be strategic or plan ahead so helpful

"expectations to guide the reading process" (p. 43) can be determined prior to the reading act. A relationship, then, appears to exist between reading achievement and the ability to identify and relate different types of materials according to their purpose, features, or structure. Myers and Paris (1978) suggested that awareness of task parameters (i.e., information that a person has and uses during an activity) in reading "reflects a general developmental accomplishment" (p. 689) acquired in settings, situations, and with age. While age may well correlate with increased task awareness, the present study controlled for age by limiting the subjects to seventh graders and yet dramatic differences in metacognitive awareness were found to exist. Deficiencies appear to be related to the content of the metacognitive awareness. Subjects who gave more semantic descriptions of the materials (i.e., deep level constructs) were found to have higher reading achievement scores. Therefore, the content of the metacognitive awareness appears to (a) guide the intentionality by which students approach different reading materials and (b) ultimately affect students' reading achievement.

Implications For Instruction

A pressing question which is currently being considered is whether metacognitive knowledge about reading should be

explicitly taught in training sessions or be implicitly acquired through meaningful reading experiences (Kendall & Mason, 1982). Findings of the present study appear to suggest that only the very highest achievers were able to make sense of these common reading materials. However, this finding does not necessarily support training students to consciously sort reading materials according to their purposes in order to increase their reading achievement and/or metacognitive awareness. The necessity of training students in metacognitive awareness would possibly be a superficial means of glossing over deeper inadequacies. In the present study, low and middle achievers' construct systems appeared to lack complexity in organization, construction, and integration. An assumption of the present study was that subjects' constructs reflected the networks that they have developed in making sense of previous reading tasks. Kelly's (1955) theory implies that change within individuals' cognitive systems occurs when understanding takes place. In other words, if students have not understood that the reading process is an interactive process used to gain meaning, they are restricted in their ability to approach reading tasks.

One main influence from which students derive their constructs of reading is through classroom instruction (e.g., Reid, 1966; Downing, 1969; Tovey, 1976; Harste, Burke, & Woodward, 1981). Some researchers have suggested

that reading instruction needs to be meaning based where students are actively involved in a thinking process (e.g., Denny & Weintraub, 1966; Downing, 1969; Canney & Winograd, 1979; Nichols, 1984). Clay (1969) in a review of the effects of reading programs on different types of students, suggested that poor readers' problems appeared to be related to being unable to put it all together rather than to learning a particular reading skill. Findings of the present study would support this premise. Low and middle achievers' interpretations of the sorting task reflected limited conceptualizations which were inconsistent in inference or deep level structure. It appears that findings of the present study would provide theoretical support for reading instruction with a meaning emphasis. Instruction concerned with meaning would reduce uncertainty about the reading process and would promote the formulation of constructs reflecting reading purposes, inference, and predicting capabilities. Support for this suggestion can be found among researchers who have suggested that readers' constructs or acquired knowledge determine strategies used to make sense of the context (Armbruster, Echols, & Brown, 1983) and knowledge intentions guide the reading process with prediction and control (Myers & Paris, 1978). The restricted ability of the low and middle achievers in the present study to sort the materials according to purpose indicated a deficiency that would appear to limit the way they approach

reading tasks. Success in reading, therefore, appears to be related to readers' constructs which guide their strategies.

Additional exploration in the areas of metacognition and reading is needed in order to determine the extent to which instruction influences readers' constructs. Investigations that probe relationships between the influences that different reading approaches have on students' unconsciously acquired knowledge about the reading process and their conscious intentions on reading tasks should provide needed information about instructional practices. Possibly a better understanding of students' perceptions of reading experiences would lead to instructional practices that promote the development of constructs reflecting inference and predicting capabilities.

RFFERENCES

Armbruster, B.B., Echols, C.H., & Brown, A.L. (1983). The role of metacognition in reading to learn: A developmental perspective. (Reading Education Report No. 40). Urbana: University of Illinois, Center for the Study of Reading.

Bannister, D. & Fransella, F. (1980). Inquiring man: The psychology of personal constructs. (2nd ed.). New York: Penquin Books.

Brown, A.L. (1982). Learning how to learn from reading. In J.A. Langer & M.T. Smith-Burke (Eds.), Reader meets author/bridging the gap (pp. 26-54). Newark, Delaware: International Reading Association.

Canney, G. & Winograd, P. (1979). Schemata for reading and reading comprehension performance (Tech. Report No. 120). Urbana: University of Illinois, Center for the Study of Reading.

Clay, M.M. (1969). Reading errors and self-correction behavior. British Journal of Educational Psychology, 39, 47-56.

Clay, M.M. (1973). Reading: The patterning of complex behavior. Auckland, New Zealand: Heinemann Educational Books.

Denny, T. & Weintraub, S. (1966). First-graders' responses to three questions about reading. Elementary School Journal, 66, 441-448.

Downing, J. (1969). How children think about reading. The Reading Teacher, 23, 217-230.

Downing, J. & Oliver, P. (1973-74). The child's conception of a word. Reading Research Quarterly, 9, 568-582.

Edwards, D.L. (1962). The relation of concept of reading to intelligence and reading achievement of fifth grade children. (Doctoral dissertation, University of Buffalo, 1962). Dissertation Abstracts International, 23, 1603-1604, (University Microfilms No. 62-04637).

Ehri, L.C. (1979). Linguistic insight: Threshold of reading acquisition. In T. G. Waller & G. E. McKinnon (Eds.), Reading research: Advances in theory and practice (Vol. 1, pp. 63-114). New York: Academic Press.

Francis, H. (1973). Children's experience of reading and notions of units in language. British Journal of Educational Psychology, 43, 17-23.

Gambrell, L.B., & Heathington, B.S. (1981). Adult disabled readers' metacognitive awareness about reading tasks and strategies. Journal of Reading Behavior, 13, 215-222.

Garner, R., & Kraus, C. (1981-82, Winter). Good and poor comprehender differences in knowing and regulating reading behaviors. Educational Research Quarterly, 6, 5-12.

Goodman, K.S. (1970). Psycholinguistic universals in the reading process. Journal of Typographic Research, 4, 103-110.

Harste, J.C., Burke, C.L. & Woodward, V.A. (1981). Children, their language and world: Initial encounters with print (Final Report. NIE-G-79-0132). Bloomington, Indiana: Indiana University, Language Education Department.

Hickman, J. (1977). What do fluent readers do? Theory into Practice, 16, 372-375.

Isakson, R.L. & Miller, J.W. (1976). Sensitivity to syntactic and semantic cues in good and poor comprehenders. Journal of Educational Psychology, 68, 787-792.

Johns, J. (1972). Children's concepts of reading and their reading achievement. Journal of Reading Behavior, 4, 56-57.

Johns, J. (1974). Concepts of reading among good and poor readers. Education, 95, 58-60.

Johns, J.L. & Ellis, D.W. (1976). Reading: Children tell it like it is. Reading World, 16, 115-128.

Kelly, G.A. (1955). The psychology of personal constructs. Vol.1. New York: W.W. Norton & Company Inc.

Kendall, J.R. & Mason, J.M. (1982). Metacognition from the historical context of teaching reading. (Tech. Report No. 263). Urbana: University of Illinois, Center of the Study of Reading.

Mason, G.E. (1967). Preschoolers' concepts of reading. The Reading Teacher, 21, 130-132.

Mattingly, I.G. (1972). Reading, the linguistic process, and linguistic awareness. In J.K. Kavanagh and I.G. Mattingly (Eds.), Language by ear and by eye: The relationships between speech and reading (pp. 133-147). Cambridge, Massachusetts: The MIT Press.

Myers, M., II, & Paris, S.G. (1978). Children's metacognitive knowledge about reading. Journal of Educational Psychology, 70, 680-690.

Nichols, F.L. (1984). Reading to preschoolers: Development of a concept of reading. Journal of Language Experience. 6, 14-18.

Oliver, M.E. (1975). The development of language concepts of pre-primary Indian children. Language Arts, 52, 865-869.

Olshavsky, J.E. (1978). Comprehension profiles of good and poor readers across materials of increasing difficulty. In P.D. Pearson & J. Hansen (Eds.), Reading: Disciplined inquiry in process and practice (pp. 73-76). Twenty-seventh Yearbook of the National Reading Conference.

Pope, M.L. & Keen, T.R. (1981). Personal construct psychology and education. New York: Academic Press.

Raphael, T.E., Myers, A.C., Tirre, W.C., Fritz, M., & Freebody, P. (1981). The effects of some known sources of reading difficulty on metacomprehension and comprehension. Journal of Reading Behavior, 13, 325-334.

Reid, J. F. (1966). Learning to think about reading. Educational Research, 9, 56-62.

Shaw, M.L.G. (1980). On becoming a personal scientist. New York: Academic Press.

Smith, H.K. (1967). The responses of good and poor readers when asked to read for different purposes. Reading Research Quarterly, 3, 53-55.

Smith, F. (1975). Comprehension and learning. New York: Holt, Rinehart and Winston.

Stansell, J.C., Harste, J.C. & De Santi, R.J. (1978). The effects of differing materials on the reading process. In P.D. Pearson & J. Hansen (Eds.), Reading: Disciplined inquiry in process and practice. Twenty-seventh Yearbook of the National Reading Conference.

Strang, R. (1968). Is it debate or is it confusion? The Reading Teacher, 21, 575-577.

Tovey, D.R. (1976). Children's perceptions of reading. The Reading Teacher, 29, 536-540.

Weber, R.M. (1970). A linguistic analysis of first-grade reading errors. Reading Research Quarterly, 5, 427-451.

TEST REFERENCE

California Achievement Test. (1977). Monterey, CA: CTB/McGraw Hill.

Footnote

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Table 1

Construct Means and Standard Deviations for Total Sample

	M	SD
Deep level	5.342	2.436
Surface level	2.514	1.482

Table 2

Comparison of Achievement Groups on Deep and Surface Level Constructs

	Achievement groups		
	Low	Middle	High
	M	M	M
Deep level constructs	3.4	5.3	7.4
Surface level constructs	2.5	2.6	2.4

Figure 1. Elicitation grid sheet.

1) This is a game (puzzle) about reading.

2) Let's name the items:

NAME _____

3) First Triad , etc. - "In what important way are two of them [these] alike but different from the third?" (Kelly, 1955, p. 222).

4) Could you place the other items in _____ and _____?

EMERGENT POLE ✓ (1)	E1 aspirin box	E2 map	E3 storybook	E4 encyclopedia	E5 dictionary	E6 shell book	E7 cartoon book	E8 game book	E9 advertisement	CONTRAST POLE X (3)
ORDER OF ELEMENT PRESENTATION	1	1	1							
			2	2	2					
					3	3		3		
		4		4			4			
							5	5	5	
	6	6		6						
						7		7	7	
	8		8				8			
					9	9			9	

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Figure 2. Example of a subject's protocol.

1) This is a game (puzzle) about reading.

2) Let's name the items:

NAME _____

3) First Triad , etc. - "In what important way are two of them [these] alike but different from the third?" (Kelly, 1955, p. 222).

4) Could you place the other items in _____ and _____?

Sort	EMERGENT POLE ✓ (1)	E1 aspirin box	E2 map	E3 storybook	E4 encyclopedia	E5 dictionary	E6 shell book	E7 cartoon book	E8 game book	E9 advertisement	CONTRAST POLE X (3)
	Helps You	✓	✓	x	✓	✓	✓	x	✓	✓	Just to Read
	Non Fiction	✓	✓	x	✓	✓	✓	x	✓	✓	Fiction
2	Read Some of it	X	✓	✓	✓	✓	✓	X	—	X	Read All of it
3	Help Solve Something	✓	✓	•x	✓	•✓	✓	X	•✓	X	Doesn't Help Solve
4	Help You Find Something	✓	✓	x	✓	✓	✓	x	✓	✓	Don't Help You
6	Help You Write Report	x	✓	✓	✓	✓	✓	X	x	X	Won't Help You Write Report
7	Read for Fun	X	•x	•✓	X	x	✓	•✓	✓	X	Would not Read for Fun

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Figure 3. Element clusters of Focus grid for 90-99 achievement group.